

GEORGE ENGELMANN
BOTANICAL NOTEBOOKS

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Rec'd April 4th
a 27

Department of Agriculture.

Washington, April 2⁵ 1877

Dr. J. C. Engelm.

My dear Sir,

Your two recent letters were duly received. One of the pines I recognized as identical with that which I had rec'd from Utah and had called *P. Balfouriana*, which however was your *P. aristata*. I suspected also that the other might be the one the English have called *Balfouriana*. I send you to day the only remaining Cone - it may be better than the other.

I hope that Lieut. Wheeler will send a Botanist into that region this season and if so I will direct es-pecial attention to these pines.

As to the Oaks - It is possible that the specimens of *Q. Durandii* which were in the Centennial Collection may have the acorns attached, but the Collection has not yet been opened out on account of want of room. The few specimens accessible have



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MISSOURI
BOTANICAL
GARDEN

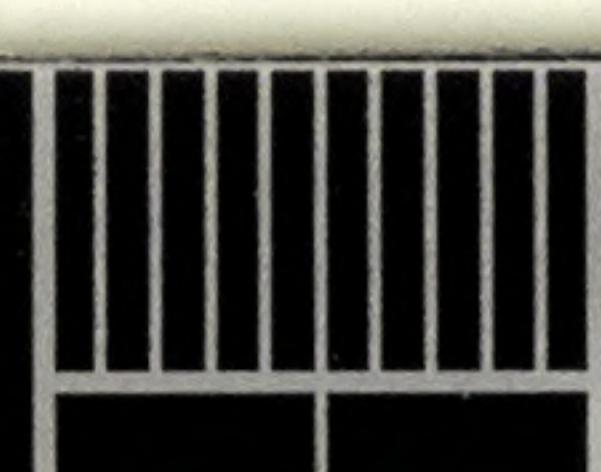
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You shall have a set of wood specimens of the Pines
Abies and Oaks as full as I can make it.

Hoping to hear from you again soon

I am yours truly
Geo. Vasey

P. S. I have nearly recovered my former health -
Cannot however bear as much study, nor as
much physical exercise.



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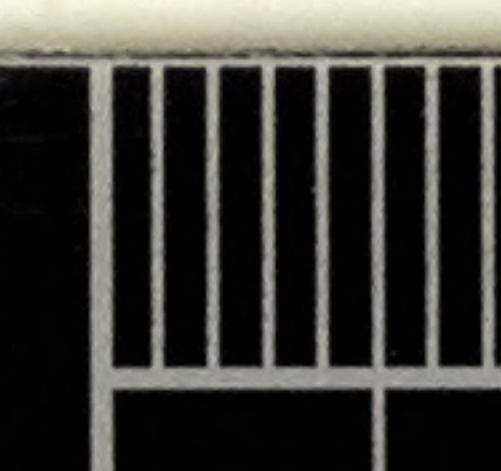
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the acorns detached. I am inclined to consider it a good species. We have accessible only a few poor specimens of Buckley's L. Sandabar, which have the lower surface of the leaf wooly. I think it to be Jones's oblongifolia, but I can yet hardly see the way to unite that with undulata.

I should have studied our Oaks more carefully last fall if it had not been for the Centennial work, but I hope this fall to be able to do so very thoroughly. The forms of Prinos & bicolor are very puzzling. The real Prinos is well marked by its thick bark, but I found one tree with ^{scaly} thin bark of White Oak, and with leaves of the form of Prinos but whitish tomentose beneath, seeming to unite the two species. I made a special journey last fall to get specimens of that curious Quercus with thick varnished leaves and came to the conclusion that it was a hybrid of alba & Prinos. The tree is intermediate in appearance with bark close on the branches but on the body whitish and near alba. L. Prinos & L. alba are growing on the same hill, but there is only the one hybrid tree. I will try to secure it in flower.

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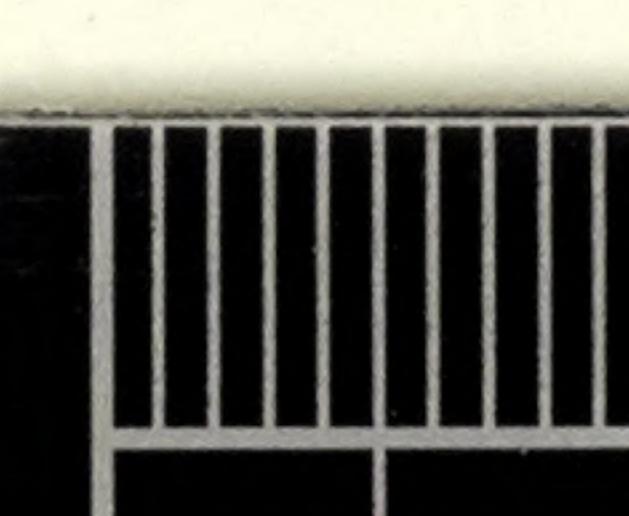
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Rec'd March 22
Ans April 9

UNIVERSITY OF CALIFORNIA,
OAKLAND, MARCH 12, 1876.

DEAR DOCTOR,

YOUR CUPULIFEROUS LETTER CAME YESTERDAY, HAVING EVIDENTLY BEEN SNOW-BOUND ON ITS WAY. I DEFERRED REPLYING TO YOUR FORMER ONE IN HOPES OF THE WEATHER ALLOWING ME TO GO A LITTLE FARTHER FROM HOME TO LOOK INTO THE LESS USUAL FORMS OF OUR COMMON OAK HERE -- DOUBTLESS THE "LIVE OAK" YOU INQUIRE FOR, AND THE ONLY ONE WITHIN MY IMMEDIATE REACH. I HAVE TAKEN IT TO BE Q. AGRIFOLIA; IT IS THE OAK OF OAKLAND, OF ALL THE LEVEL LANDS AND MOST OF THE ISLANDS AND CANONS ON THE BAY, AND ALSO OF THE INTERIOR PLAINS, I. E. OF THE LOWER SACRAMENTO AND SAN JOAQUIN VALLEYS. OCCUPIES ALL THE NORTHWARD SLOPES OF THE CANONS, LARGELY IN THE SHRUBBY FORM, MAKING A KIND OF THICKET OR CHAPARRAL WHERE THE GROUND IS POOR OR MUCH EXPOSED TO SUN & WIND. ON THE LOW GROUNDS IT FORMS STOUT TREES WITH SHORT TRUNK, SAY 6 TO TWELVE FEET ON AN AVERAGE, DIVIDING INTO FEW, LONG CROOKED LIMBS BUT LITTLE ABOVE THE HORIZONTAL, WITH FOLIAGE CROWDED NEAR THE END OF THE LIMBS AND FORMING A FLATTENED OR HEMISPHERICAL TOP, SHARPLY DEFINED, AND RARELY OVER 24 TO 30 FEET HIGH. ALTOGETHER LOOKING MORE LIKE OLD ORCHARDS IN THE LANDSCAPE, THAN LIKE AN OAK FOREST. THE TOPS OF THE ATLANTIC LIVE OAK LOOK MORE STRAGGLING, AND NOT SO MUCH AS IF THEY HAD BEEN TRIMMED WITH HEDGE SHEARS; OTHERWISE THEY ARE A GOOD DEAL ALIKE IN GENERAL HABIT. I INCLOSE SOME OF THE LEAF FORMS. OLD TREES ARE MORE INCLINED TO HAVE THE ENTIRE FORM; YOUNG ONES AS WELL AS THE SHRUBBY VARIETIES SOMETIMES SEEM TO ATTEMPT TO APPROACH Q. GARRYANA, THE BORDER BECOMING STRONGLY UNDULATE SO AS TO APPEAR LOBED AT FIRST SIGHT.

THE ONLY OTHER FORM SIMILAR TO THIS IS THE ONE OF WHICH I INCLOSE A SPRIG. AT LEAST THEY SAY IT IS AN OAK; IT IS PLANTED FOR HEDGES; I HAVE NEVER SEEN IT IN BLOOM OR FRUIT. -- THE ACORN OF THE LIVE OAK IS VERY POINTEDLY CONICAL, THE CUP QUITE SHALLOW.

THE NEAREST PLACE TO THIS WHERE I HAVE SEEN Q. GARRYANA, IS THE SONOMA VALLEY. THERE IT GROWS ALONGSIDE OF Q. SONOMENSIS -- THE BLACK OAK -- AND WHAT I SUPPOSE TO BE Q. LOBATA. THE LATTER IS DISTINGUISHABLE AT A DISTANCE BY THE HUGE GALLS WITH WHICH IT IS MOSTLY BESET, AND I INSTINCTIVELY CALLED IT "POST OAK", WHICH IN HABIT IT MOST RESEMBLES. I DO NOT REMEMBER SEEING ANY SHRUBBY FORM OF LOBATA IN THE VALLEY -- PERHAPS, LIKE THE POST OAK, IT REQUIRES A PECULIAR SOIL TO PRODUCE THE DWARF.

ON THE WESTERN SLOPE OF THE SIERRA NEVADA, I HAVE SEEN WHAT I TAKE TO BE Q. GARRYANA, FORMING SHRUBS FROM 5 TO 8 FT. HIGH, SEEMINGLY ADULT.



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OF A. RIFARIA IN THE SOUTH.
 SACRAMENTO RIVER STEAMER. NONE HEREABOUTS; - IT HAS THE GENERAL HABIT
 P. S. I HAVE SEEN THE NATIVE GRAPE OF CAL. ONLY FROM THE DECK OF A
 IT DID NOT, HOWEVER, FORM MASSES LIKE THOSE ON THE WESTERN SLOPE OF THE
 WAHSATCH, JUST ABOVE SALT LAKE CITY; AND YET I HAVE IT IN MY MIND THAT
 IT WAS THE SAME OAK.

AS FOR *Q. DOUGLSII*, I SUPPOSE IT IS THE ONE KNOWN HEREABOUTS AS
 "CANYON OAK", BECAUSE IT IS FOUND IN THE LARGER VALLEYS THAT TRAVERSE
 THE COAST RANGE. THE NEAREST POINT WHERE I KNOW IT TO GROW IS ABOUT 30
 MILES SOUTH, ON THE NORTHWARD SLOPES OF ALAMEDA CANON, THROUGH WHICH
 THE C.P. R.R. RUNS.

YOU SEE I AM NEITHER WELL POSTED, NOR VERY WELL SITUATED FOR OBSERVING, THUS FAR. LAST YEAR I COULD COLLECT AND OBSERVE ONLY PASSIM. THIS YEAR I HOPE TO HAVE AN OPPORTUNITY FOR MORE EXTENSIVE EXCURSIONS, AND WILL COLLECT WHEREVER I GO. BUT I AM WAITING ANXIOUSLY TO SEE THAT VOLUME ON THE BOTANY OF CAL., FOR THUS FAR I AM REDUCED TO WATSONS VOL. ON THE BOTANY OF THE FORTIETH PARALLEL, WHICH I HAVE MYSELF; IN THE UNIV. LIBRARY THERE IS SCARCELY ANYTHING ON THE SUBJECT, AND OF COURSE I AM UNABLE TO DETERMINE SPECIFICALLY THE MOST COMMON PLANTS AROUND HERE. BOLANDER I KNOW PERSONALLY; BUT HE NEVER COMES OVER HERE, AND WHEN I GO TO THE CITY I AM USUALLY TOO MUCH PRESED FOR TIME TO HUNT HIM UP. FOR THE PAST 4 YEARS, DURING WHICH HE WAS SUP'T OF PUBLIC INSTRUCTION, HE HAS DONE VERY LITTLE IN BOTANY; SO HE TOLD ME. THE DIFFICULTY OF COMMUNICATION WITH SAN FRANCISCO IS AT PRESENT SO GREAT, THAT I HAVE NOT EVEN BECOME A MEMBER OF THE ACADEMY, BECAUSE I COULD NOT ATTEND ONE IN 20 OF ITS MEETINGS. IT TAKES 4 HOURS TO GO & COME. THIS WILL SOON BE IMPROVED BY THE INTRODUCTION OF STEAM CARS BETWEEN BERKELEY: THE SITE OF THE UNIVERSITY: AND OAKLAND; WHEN THE TIME TO THE CITY WILL BE REDUCED TO HALF. AT PRESENT WE MISS EVERYTHING THAT GOES ON, UNLESS WE MAKE UP OUR MINDS TO STAY OVERNIGHT.

YOU ASK ABOUT MY EYE TROUBLE. THEY ARE SIMPLY IRRITATED -- NOTHING ELSE SEEMS TO BE THE MATTER. THE OCULISTS CAN IMAGINE NO CAUSE FOR IT EXCEPT MY DOUBLE-SEEING, AND THE CONSEQUENT GREAT EFFORT AT CO-ADAPTATION. BUT I HAVE SEEN DOUBLE AS LONG AS I CAN REMEMBER; AND I FIND THAT THE USE OF PRISMATIC SPECTACLES DOES NOT RELIEVE ME AT ALL. QUERY: WILL THE STRABISMUS OPERATION BE ANY MORE EFFECTUAL? -- IT WAS THOUGHT THAT AN IMPROVEMENT IN MY GENERAL HEALTH WOULD LEAD TO THE SUBSIDENCE OF THIS IRRITATION; BUT IT CONTINUES JUST SO LONG AS I USE MY EYES FOR ANY CLOSE WORK, AND BECOMES INSENSIBLE WHENEVER, FOR SOME TIME, I USE THEM ONLY FOR GENERAL SEEING. THE SAME AS REGARDS SENSITIVENESS TO LIGHT.

WE ARE JUST NOW HAVING A HOT LEGISLATIVE FIGHT OVER THE POLICY OF THE UNIVERSITY -- THE OFTEN REPEATED CONTEST BETWEEN THE IGNORANCE OF AGRARIANISM AND THE CAUSE OF HIGHER EDUCATION. IF WE WIN -- AS I TRUST WE WILL -- I WILL HAVE A FINE CHANCE TO WORK OUT A GREAT MANY INTERESTING QUESTIONS. IF WE LOSE, I MAY BE BACK TO THE STATES THIS SUMMER. SUCH IS THE LIFE OF A TEACHER OF SCIENCE IN THIS COUNTRY! - GREETINGS TO DORA! YOURS FAITHFULLY

Eug. W. Hilgard



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MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Rec April 4th
Ans - 9

UNIV. OF CAL. MARCH 26, 1876.

DEAR DOCTOR,

THE INCLOSED SPRIG OF OAK : *Q. AGRIFOLIA*? : MAY THROW SOME LIGHT ON A DIFFICULTY YOU MAY HAVE MET WITH IN ACCOUNTING FOR DIFFERENCES IN THE TIME AND MODE OF FLORITION OF THE SPECIES. IN THE SPRIG I SENT YOU THE OTHER DAY, THE AMENTS CAME DIRECTLY OUT OF THE OLD WOOD, FROM A SESSILE BUD. THIS IS THE NORMAL CASE. JUST NOW, HOWEVER, THE MAJORITY OF OAKS IN THIS IMMEDIATE NEIGHBORHOOD IS FLOWERING FROM THIS YEARS SPROUTS, AND ANY ONE NOT KNOWING HISTORICALLY THE CAUSE WOULD BE APT TO DIAGNOSTICATE A SPECIFIC DIFFERENCE.

THE FACT IS, THAT THESE LATE-FLOWERING OAKS WERE TWICE DENUDED OF THEIR LEAVES LAST SEASON BY CATERPILLARS, AND BARELY MADE A RESPECTABLE GROWTH OF LEAVES BEFORE WINTER, THUS USING UP ALL THEIR AVAILABLE BUDS. SO THEY HAD TO TURN OUT SOME BRANCHES BEFORE THEY COULD BLOOM, AND THAT'S WHAT'S THE MATTER.

THE FACT THAT SEEDS FIND OPPORTUNITY TO GERMINATE, AND PLANTS TO DEVELOP AND BLOOM IN DIFFERENT LOCALITIES AT ALMOST ANY SEASON OF THE YEAR, COMPLICATES VERY MUCH THE FORMS WHICH ONE AND THE SAME PLANT MAY ASSUME IN THIS COUNTRY. ANNUALS BECOME BIENNIALS WHEN SOWED AT ONE TIME, AND DIE OUT AS THEY SHOULD WHEN BROUGHT INTO BLOOM A LITTLE SOONER. THE ESCHSCHOLTZIAS NOW IN BLOOM ARE ABOUT 3 TIMES THE SIZE OF THOSE THAT BLOOMED IN OCTOBER, FROM SEED THAT IS COMING UP ABOUT THIS TIME, AND IS NOW HAVING ITS SECOND CROP OF FLOWERS; WHILE THE SEED THAT CAME UP WHEN THE RAINS SET IN, WILL EXHAUST ITSELF WITHIN A FEW MONTHS FROM NOW. SO WITH MIGNONETTE; SOME SOWN JUST A YEAR AGO, IS NOW HAVING ITS SECOND FULL CROP OF FLOWERS.

YOURS FAITHFULLY

Eug. W. Stigard



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UNI. OF CAL. MARSH 86, 1870

O C A R D O C T O B R

THE INCLOSED SPECIMEN OF OAK : G. ACERIFOLIUS : MAY THROW
SOME LIGHT ON A DIFFICULTY YOU MAY HAVE MET WITH IN ACCOUNTING FOR
DIFFERENCE IN THE TIME AND MODE OF FLOWERING OF THE SPECIES. IN THE
SPECIES I SENT YOU THE OTHER DAY, THE FLOWERS CAME DIRECTLY OUT OF THE
OLD WOOD, FROM A SEPARATE BUD. THIS IS THE NORMAL CASE. JUST NOW, HOW-
EVER, THE MAJORITY OF OAKS IN THIS IMMEDIATE NEIGHBORHOOD IN FLOWERING
FROM THIS YOUNG YEAST SPROUTS, AND ONLY ONE NOT KNOWN HERETOFORE THE CAUSE
WOULD BE ATTRIBUTED A SPECIFIC DIFFERENCE.

THE FACT IS THAT THESE LATE-FLOWERING OAKS WERE MERELY THE DENOMINATOR OF
MISSOURI BOTANICAL GARDEN LIBRARY
GEORGE ENGELMANN PAPERS
THE CROWN OF LEAVES BEFORE WINTER, THUS USING UP ALL THEIR AVAILABLE
BUDS, SO THAT THEY HAD TO TURN OUT SOME PRANCING BEEF-ORE THICK COATED BEEF,
AND THAT'S WHAT'S THE MATTER.

THE FACT THAT BEADS FIND OPPORTUNITY TO GROW IN THE
DECIDUOUS AND BROAD IN DIFFERENT LOCALITIES AT ANY SEASON OF THE
YEAR, CHORIOLATEAS ASK HOW THE FORMS WHICH ONE AND THE SAME PLANT MAY
ASSUME IN THIS COUNTRY. ANNUAL BEADS BECOME BIENNIALS WHEN BORN A LITTLE SOONER. THE
SECHCHOLATEAS NOW IN BROAD ARE ABOUT 8 TIMES THE SIZE OF THOSE THAT
BECOME IN OCTOBER, FROM 2500 THAT IS COMING UP ABOUT THIS TIME, AND
IS NOW HAVING ITS SECOND CROP OF FLOWERS; WHILE THE SEED THAT CAME UP
WHEN THE HAIL SET IN, LITTLE EXHIBITED ITSELF WITHIN A FEW MONTHS FROM
SIGHT SINCE; SOME BORN JUST A YEAR AGO, IS NOW HAVING ITS SECOND
CROP OF FLOWERS.

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MISSOURI
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Rev April 29
Ans May 1

OAKLAND, APRIL 21, 1876.

DEAR DOCTOR,

THE WOOD OF *QUERCUS AGRIFOLIA* IS GOOD FOR NOTHING BUT FUEL, AND IT COSTS SO MUCH TO CUT IT UP INTO STOVE WOOD THAT IT SCACELY WOULD PAY IN ANY COUNTRY WHERE TIMBER IS MORE ABUNDANT. LIKE THE SOUTHERN LIVE OAK, IT WILL NEITHER SP LIT NOR SPLINTE~~E~~ASILY; BUT IT IS SO BRITTLE THAT IT IS BROKEN RATHER THAN CUT BY ANY BUT AN EXTREMELY SHARP AXE. THEN IT USUALLY IS VERY KNOTTY AND CROOKED, SO THAT IT MUST BE SAWED TO GET IT INTO ANY DEFINITE SHAPE.

I HAVE LATELY BEEN TO THE OTHER SIDE OF THE RANGE, ON CARQUINES STRAIT, WHERE OTHER OAKS GROW; VIZ: THE BLACK OAK, ALREADY PAST ITS BLOOM AND IN FULL LEAF; SHOWS THERE NO~~A~~ SIGNS OF A SHRUBBY FORM. THEN THE POST OR WHITE OAK, WITH THE BIG GALLS, NOW BLACK WITH FUNGUS; THIS JUST IN BLOOM, LEAVES NOT FULLY GROWN. IN THE VALLEYS SOME VERY LARGE TREES, IN GENERAL SHAPE RESEMBLING *Q. FALCATA* ^{OR *ORTUSILoba*} WHEN GROWING ISOLATED, BUT CONSPICUOUSLY CHARACTERIZED BY LONG PENDULOUS BOUGHS, OFTEN HANGING DOWN VERTICALLY FOR SEVERAL YARDS FROM THE EXTREMITIES OF THE BRANCHES. THIS OCCURS ONLY ON LARGE TREES AND IN HABIT THESE ARE DECIDEDLY MORE LIKE POST THAN WHITE OAKS. ON THE HILLSIDES THE SMALLER FORM OF *Q. DOUGLSII* IS ABUNDANT; 12 TO 15 FEET HIGH, BRANCHES LOW DOWN ON THE TRUNK, AND FULL OF GALLS, WHICH ARE SCARSELY SEEN ON THE LARGE TREES. THE LEAVES ON THESE SMALL OAKS WERE A GOOD DEAL MORE ADVANCED THAN ON THE LARGE ONES; I SAW NO FLOWERS ON THEM. MY IMPRESSION IS THAT THERE AS ON THE SIERRAS, THIS OAK NEVER GROWS LARGE EXCEPT IN SHELTERED SPOTS, JUST AS IS THE CASE WITH *Q. AGRIFOLIA*.

I SAW A FEW TREES OF THE "MOUNTAIN" OR "ROCK" OAK, WITH UNDULATE DENTATE LVS. RESEMBLING A LITTLE THOSE OF *AGRIFOLIA* IN SHAPE, BUT GRAYISH PULVERULENT, LIKE~~H~~OSE OF *Q. CINEREA*. NOT IN BLOOM.

LATER IN THE SEASON I WILL GET YOU FULL GROWN LEAVES &c. OF ALL THESE FORMS.

THIS IS A VERY MAGNIFICENT COUNTRY JUST NOW -- SUCH MASSES OF FLOWERS ARE SEEN NOWHERE ELSE, UNLESS IN CHINA; OUR WESTERN PRAIRIES ARE TAME IN COMPARISON. YOU SEE THE GLEAM OF YELLOW, ORANGE, RED, PURPLE, BLUE OR WHITE, MILES AWAY, IN THE GENERAL GREEN OF THE GRASS; AND YOU SOON LEARN TO DISTINGUISH THE FIELDS OF *ESCHSCHOLTZIA*, *RANUNCULUS*, *PORTULACCA*, *LUPIN* *ORTOCARPUS*, *ANEMONE*, &c. AS FAR AS YOU CAN SEE THEM. THE OLD COUNTRY



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TOO CONTRIBUTES LARGELY TO THE GAYETY OF COLORS, BY IMMENSE MASSES OF BRASSICA RAPA, SINAPIS NIGRA AND ESPECIALLY RAPHANUS SATIVUS, WHICH TOGETHER WITH THE TWO ERODIUMS FORM THE BULK OF COMMON WEEDS HERE. CURIOUS THAT THESE OLD-WORLD FORMS SHOULD FIND SUCH A PRE-EMINENTLY FAVORABLE CLIMATE OUT HERE! -- BUT THE FACT IS, THAT THIS SPRING REMINDS ME MORE OF GERMANY THAN ANY I EVER EXPERIENCED IN AMERICA. THEN THE SUMMER TRANSPORTS ME TO THE SHORES OF THE MEDITERRANEAN!

MONTE NOVALE -- GREETINGS TO DORA!

YOURS EVER

Eug. W. Higard



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WHILE I AM ON THE OAKS, I WANT TO SAY A WORD ABOUT THE SUPPOSED SPECIFIC IDENTITY OF Q. COCCINEA AND TINCTORIA. BOTH ARE ABUNDANT ALL OVER NORTH MISSI,; I HAVE LIVED IN THE WOODS FORMED BY THEM, Q. FALCATA AND FERRUGINEA FOR 18 YEARS, AND HAVE FAILED TO FIND ANY TRANSITION FORMS BETWEEN ANY OF THESE. FROM CHILDHOOD UP, THEY ARE SO CONSISTENTLY AND DECIDEDLY DISTINCT, THAT NO ONE AT ANY TIME FAILS TO DISTINGUISH THEM AT THE FIRST GLANCE, IN THE WOODS. THE ROUND, WHITE-BARKED SHOOTS OF COCCINEA, WITH LEAVES DEEPLY AND SHARPLY SINUATE AND LOBES ACUTE, CONTRAST STRONGLY WITH THE DARK AND HABITUALLY RIBBED YOUNG SHOOTS OF Q. TINCTORIA, WITH DARK LEAVES SOMETIMES SO OBTUSELY LOBED AS TO APPEAR ONLY UNDULATE. THE TEXTURE OF THE LEAVES, TOO, IS ALTOGETHER DIFFERENT; THOSE OF COCC. ARE ALWAYS SOFTER AND LESS BRITTLE, AND OF NEARLY THE SAME SHADE OF COLOR ABOVE AND BENEATH; THAT SHADE ALWAYS A GREAT DEAL LIGHTER THAN IN TINCTORIA, SO AS TO DISTINGUISH THE TREE AT A LONG DISTANCE. IN AUTUMN THEY BECOME, NOT DARK VENOUS BLOOD-RED, LIKE TINCT., BUT A BRIGHT, ARTERIAL SCARLET, ESPECIALLY AT FIRST. THE TRUNK ^{OF COCCINEA} IS OF A DIFFERENT HABIT, AND ITS THIN, SMOOTH, WHITE BARK SHINES TO A DISTANCE. THE WOOD IS QUITE DIFFERENT, MORE BRITTLE, LESS FIBROUS, SPLITS MUCH MORE EASILY THAN TINCT., AND IS GREATLY INFERIOR TO THE LATTER BOTH AS FIREWOOD AND FOR ALMOST EVERY OTHER PURPOSE. THE ACORNS, SO VARIABLE IN Q. TINCTORIA, ARE ALWAYS EASILY IDENTIFIED IN COCC., BEING OF VERY CHAR. HABIT. IN SHORT, THE TWO RESEMBLE EACH OTHER ONLY IN THE FORM OF THE LEAVES OF OLD TREES, AND DIFFER AS WIDELY IN EVERY OTHER RESPECT AS ALBA AND OBTUSILOBA. IN DRIED SPECIMENS, THE RESEMBLANCE IS GREATER; BUT

YOURS FAITHFULLY

Oakland, Cal May 13 1876

Eug. W. Hilgard



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BUT ENOUGH OF BOTANY FOR THIS TIME. SOME OTHER, I WANT TO TELL YOU ABOUT THE REMARKABLY EUROPEAN FACIES OF OUR FLORA, WHICH I HAVE NEVER SEEN ANY VERY DEFINITE ALLUSION TO. STILL, BEFORE I FORGET IT, LET ME SAY THAT IF THE TWIG OF HEDGE "OAK" I SENT YOU IS NOT *Q. CHRYSOLEPIS*, IT IS PROBABLY *BERBERIS AQUIFOLIA*, WHICH IS USED FOR HEDGING.

NOW FOR SOME DOMESTIC NEWS. AFTER MATURE DELIBERATION, AND NOTWITHSTANDING THE SEVERE LEGISLATIVE FIGHT FROM WHICH WE HAVE JUST EMERGED : ALITTLE THE WORSE FOR FUNDS, BUT NOT BADLY HURT : I HAVE CONCLUDED TO GO INTO THE VENTURE OF BUILDING ME A HOUSE AND TRYING TO HAVE A LOCAL HABITATION OF MY OWN. YOU MAY TAKE THIS AS AN EARNEST THAT I LIKE

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

BUT I EXPECT I AM BORING YOU NOW --

"ABER WESSEN DAS GEFAESS IST GEFUELLT,

DAVON ES SPRUDELT UND UEBBRQUILLT!"

SO I'LL SAY A WORD OR TWO ABOUT THE OAKS -- QUOD ERAT DEMONSTRANDUM.

I INCLOSE THE FLOWERS OF WHAT I NOW TAKE TO BE *Q. LOBATA*, THE WHIT OAK SO CALLED HEREABOUTS, WITH THE PENDULOUS BRANCHES, AND WHEREOF THE YOUNGER TREES ARE SO INFESTED WITH HUGE GALLS. ALSO A LEAF OF *Q. SONOMENSIS*, THE BLACK OAK, OF WHICH I HAVE NO FLOWERS. ALSO A FLOWERING TWIG OF A VARIETY OF *Q. AGRIFOLIA*, WITH STRAIGHT AND SLENDER BRANCHES A YOUNG TREE, GROWING IN A COWPEN, & VERY LUXURIANT. OF THE MOUNTAIN



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Rio Jan 17 1878
Aug 26 1878

OAKLAND, JULY 9, 1876.

DEAR DOCTOR,

TO-DAY I WENT TO LOOK AFTER THE SHRUBBY *Q. WISLIZENI*, ON "GRIZZLY PEAK" :1900 FT. :, NOT FAR FROM HERE. HAPPENING TO FIND A BUSH OF REAL *AGRIFOLIA* AMONG THE PREVALENT *WISLIZENI*, I WAS ABLE TO MAKE CLOSE COMPARISON, AND IN CONSEQUENCE GIVE IT UP -- IT IS AS GOOD A SPECIES AS MOST OF THE OAKS, I RECKON. NOW AS FOR THE POINTS OF DISTINCTION IN THE LEAF, I FIND THOSE OF *AGRIFOLIA* MUCH MORE COMMONLY AND COMPLETELY CUPPED THAN IN THE OTHER, WHERE THEY ARE MORE GENERALLY REFLEXED ALONG THE LATERAL MARGIN, BUT SO AS TO UNROLL PERFECTLY FLAT; WHEREAS IN *AGR.* THEY BECOME CRUMPLED IN PRESSING, BEING CUPPED LIKE A SPOON. IN *WISLIZENI* THERE IS A WELL-DEFINED MIDRIB THROUGHOUT THE LENGTH, AND THE VEINLETS ARE PARALLEL; IN *AGR.* THE MIDRIB USUALLY FORKS ABOVE, AND THE BRANCHES CURVE AND FORK THEMSELVES. THAT IS IN WHAT ONE WOULD CALL "CHARACTERISTIC SPECIMENS"; THERE ARE THOSE IN WHICH THESE MARKS FAIL BUT THE LOWER SURFACE OF THE LEAF HAS ONE UNFAILING MARK, NO FAILOR, VIZ: THAT THE MIDRIB AND LARGER (PRIMARY) VEINS, BESIDES BEING MUCH LESS PROMINENT THAN IN *AGR.*, AND ALMOST FLATTENED DOWN, ARE BORDERED BY A NARROW BAND OF PARENCHYMA FORMING A KIND OF RAISED MARGIN, AND THUS PRODUCING THAT PECULIAR APPEARANCE WHICH, AS KELLOGG SAYS, IS "EASIER SEEN THAN DESCRIBED." THE ACORNS, TOO, EVEN IN THEIR PRESENT UNDEVELOPED CONDITION, ARE VERY DIFFERENT -- MUCH MORE IMMERSED; BUT I COULD NOT HELP REMARKING AGAIN THE GREAT RARITY OF LAST YEARS ACORNS, AS COMPARED WITH THOSE OF THIS YEAR, AND THE FACT THAT SOME OF THE LATTER ARE SO LARGE THAT ANY ONE WOULD THINK THEY WERE GOING TO ROPEN THIS YEAR, WHILE OTHERS ARE FAR BEHIND. I WILL WATCH SOME OF THESE AND SEE IF THEY ARE NOT OCCASIONALLY RIPENED ANNUALLY.

I FOUND NO FRUIT ON THE SHRUBBY *AGRIFOLIA* UP THERE.

AS FOR THE ABNORMALLY BIENNIAL ACORNS OF THE LATTER, I TOLD YOU IN A.P.C. THAT THEY ARE FALLING OFF, ALTHOUGH THEY HAVE GROWN UP TO A FEW DAYS AGO, AND SOME ARE GROWING YET, BUT DO NOT SEEM LIKELY TO RIPEN, AS THE CUP APPEARS TO BE RUNNING AHEAD OF THE ACORN, AND CURLS OVER IT IN AN UNNATURAL WAY. YOU WILL SEE THAT IN THE SPECIMENS I HAVE COLLECTED. I NOW NOTICE THAT THESE IMMATURE, CURLED-IN CUPS ARE QUITE COMMONON THE TREES HERE, A FEW BEING DEVELOPED A GOOD DEAL FARTHER THAN THOSE I HAVE OBSERVED, SO THAT I CANNOT HELP THINKING THAT AFTER ALL, THESE ABNORMAL BIENNIAL CROPS DO SOMETIMES MATURE. THE CATERPILLAR, HOWEVER, HAS DONE SO LITTLE AMGE THIS SEASON, THAT I WILL NOT BE ABLE TO VERIFY THE MATTER HERE NEXT SEASON. BEYOND THE RANGE THEY HAVE HAD BETTER LUCK, AND I WILL LOOK OUT FOR FACTS THERE.



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I HAVE READ YOUR OAK PAPER FEELINGLY AND WITH GREAT INTEREST. I AM GLAD TO SEE YOU LEFT THE WAY OPEN FOR A DISTINCTION BETWEEN *Q. TINCT.* AND *COCCINEA*, FOR THEY ARE MOST ASSURDLY AS MUCH SO AS ANY TWO ALLIED ONES CAN BE. I SPOKE TO KELLOGG ABOUT IT THE OTHER DAY, AND HE LAUGHED AND SAID: "THAT IS ONE OF THE MISTAKES THAT NO ONE WOULD THINK OF MAKING IN THE FIELD! -- WHY, THERE ISN'T A LITTLE NIGGER BOY DOES NOT KNOW ONE FROM THE OTHER, AND THAT THE *COCCINEA* SPLITS TWICE AS EASILY AND MAKES A POORER FIRE." AS I SAID BEFORE, YOU CAN DISTINGUISH THE ^{cockerel} TREE A MILE AWAY, BY ITS LIGHT GREEN FOLIAGE, AND TALL BLUISH-GRAY TRUNK; AND WHILE FREQUENTLY ASSOCIATED WITH *TINCTORIA*, IT NEVERTHELESS INvariably DENOTES A POORER, LIGHT SOIL WHERE IT PREVAILS, AND ITS PRESENCE IS A DEPRESSING FACTOR IN THE PRICE OF LAND; SO THAT ITS SPECIFIC CHARACTER IS ACTUALLY VOUCHEd FOR BY THAT ULTIMA RATIO, THE LAND-OWNER'S POCKETS. I REMEMBER ONLY ONE CASE IN WHICH I FELT A DOUBT AS TO WHICH OF THE TWO I HAD BEFORE ME; IT WAS IN ABOTTOM OF SOUTH MISSI., DENSELY WOODED, SO THAT ALL TREES HAD TALL TRUNKS, WITH SCARCELY ANY BORKE. ITS BARK WAS TOO YELLOW FOR *COCCINEA*, BUT ITS LEAVES HAD THE PECULIAR SUB-GLABROUS LOWER SURFACE WHICH I CONSIDER AS ONE OF THE SURE MARKS OF COCC.; MOREOVER, THE HABITAT WAS ONE IN WHICH COCC. IS NEVER FOUND IN MISSI. BOTH OAKS GREW ON THE ADJOINING UPLANDS, AND I TOOK IT FOR A HYBRID.

I AM VERY MUCH INTERESTED ABOUT *Q. LAURIFOLIA*. I NEVER COULD MAKE UP MY MIND TO CONSIDERING ALL THESE FORMS AS SPORTS OR HYBRIDS OF *AQUATICA*; THEY ARE OF TOO FREQUENT AND EXTENSIVE OCCURRENCE. STILL, THE YOUNG SHOOTS OF *AQUATICA* DO NOT CONFORM TO YOUR RULE THAT ALL LEAVES ARE \pm OBTUSE OR CUNEATE, AND THEY HAVE FORMS WHICH FOILED MY EFFORTS TO DISTINGUISH THEM FROM WHAT I SUPPOSED OUGHT TO BE *LAURIFOLIA* MICH. I HAVE TWO SPECIMENS LABELED BY YOU "*LAURIFOLIA*", AS UNLIKE AS POSSIBLE -- THE ONE FROM THE SEA-SHORE, AMONG *Q. VIRENS*, WHICH YOU MENTION; THE OTHER CORRESPONDING TO THE FIGURE OF *HETEROPHYLLA*.

P. S. JAN. 8, 1877. I THINK THERE MUST BE A MISTAKE ABOUT THE

LOCALITY OF YOUR *Q. VIRENS* FROM KEMPER CO., MISS. A PORTION OF THAT SAME TREE, AT LEAST, HAD LEAVES DISTINCTLY LOBED; AND THERE IS NO *Q. VIRENS* EVEN 100 MILES FARTHER SOUTH OF KEMPER. BUT ON THE SEA-SHORE THERE DO SEEM TO ME TO BE TWO VARIETIES AT LEAST OF *VIRENS*, SO DISTINCT IN HABIT THAT I COULD NEVER MAKE UP MY MIND THAT THEY WERE ~~NOT~~ DISTINCT. ^{GEORGE ENGELMANN} SPECIES. ONE HAS SMALL, CORIACEOUS, USUALLY CUPPED LEAVES; THE OTHER MIGHT BE TAKEN FOR *Q. CINEREA* VAR., THE LEAVES BEING LARGER, NOT TRULY CORIACEOUS, AND THE WHOLE HABIT OF THE TREE MORE LIKE *AQUATICA* THAN *VIRENS*. PROBABLY MORE HYBRID COMPLICATIONS! I HAVE A MIND TO SEND YOU THOSE MISS. SPECIMENS AGAIN FOR FARTHER COMPARISON.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



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MISSOURI
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GARDEN

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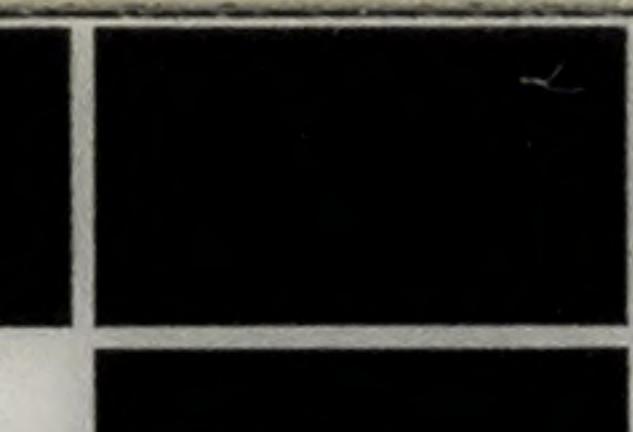
Dr Engelmann
St Louis Mo

Dear Sir

At the suggestion of my friend relative Mr W W Rawnel. I send you some young hickorys (2 species) & some acorns in various stages of development. The two or three smallest tubes, I think are from acorns dropped this fall, the larger a year old. One of the paper parcels contains three tubes with the white shoot, another a single tube which I have had suspended in a bottle for some time & is turning green & putting out leaves. unfortunately the acorn has been broken from these the third paper has two acorns with the radicle just beginning to enlarge. I regret I could not find any more advanced. six weeks ago I saw kernels as large as a guinea.



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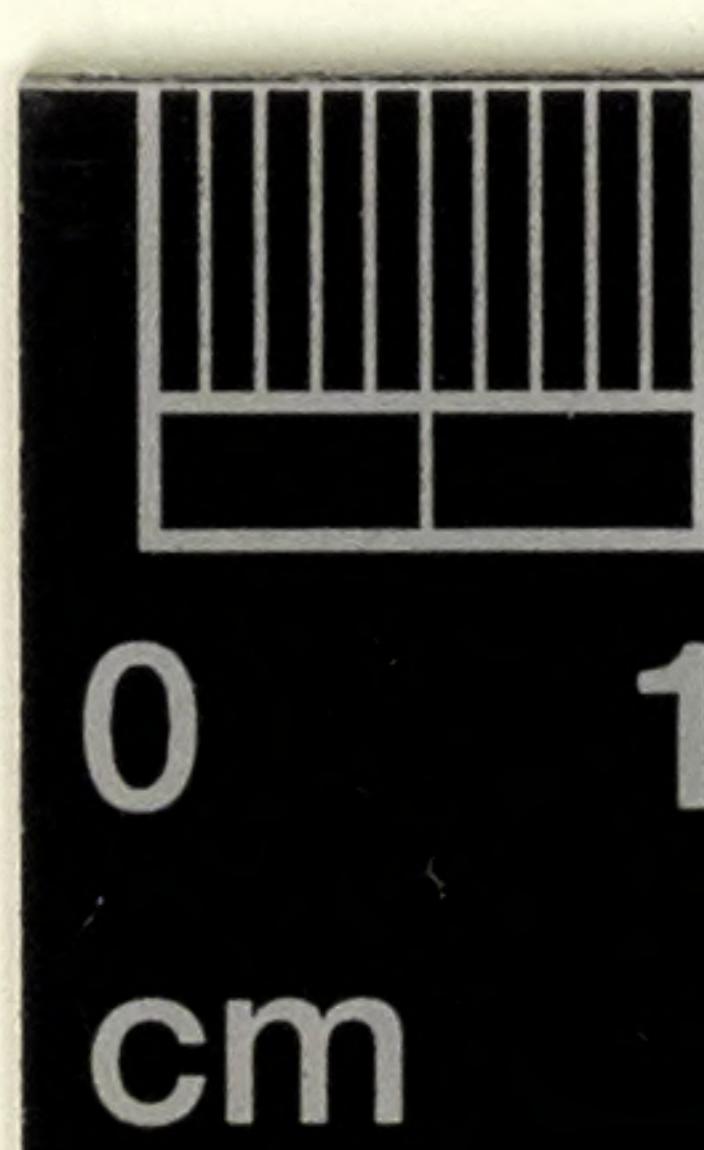
MISSOURI
BOTANICAL
GARDEN

I am quite ignorant of botany, but have always paid attention to the germination of seeds & the growths of trees, I am quite familiar with most of our forest trees. My attention was first called to these oak trees by seeing some little negroes digging them. I sent some to Dr. A. R. Gibbs of Charleston. He knew nothing about them. This fall there was an immense crop of acorns, & I was gathering them to feed my pigs, & in that way noticed the smelling of the radicle, then the shot from the tree &c. I again sent some to Dr. Gibbs, but they did not interest him. Weeks after I sent some with a drawing to Mr. Rainier, & others to Mr. Leibnitz, they were greatly interested & Mr. Leibnitz is making investigations. It is a very curious thing of still nine o'clock that it should have escaped the notice of botanists.

The live oaks has many varieties in my yard there are several. I will be very glad to give you any information I can.

Yours sincerely W. J. Maycock

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS



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GARDEN

Received 4th

Openous ~~Juniper~~
small tree, sapling size

Austin, Texas.

Aug. 1, 1882.

Dr. Engelmann

Dear Sir:

Owing to a failure on the part of the trains I did not get off this evening as I expected. However this gives me more time to botanize in the vicinity of Austin.

You have very likely by this time received the green specimens of Oak sent you from here some days since since sending these I have been out a good deal, and I



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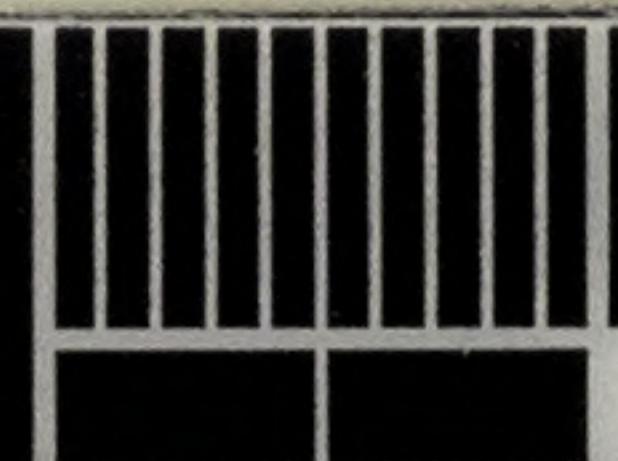
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have found that
little *Quercus Durandii*
abundant in every
direction, especially
on the south side
of the Colorado River,
along rich limestone
slopes, in just such
soil as our northern
papaw would prefer.
It occurs on this side of
the Austin side of the
river, in the very town
itself, but not exactly
in what would be
considered the river-
bottom. I suppose
these town-trees are
what Prof. Sargent
saw, and being abused
by animals, they give
one a poor idea



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of the real appearance
of the tree. It grows
with other trees but I
have not yet seen it
near Post oaks or even
on what would be
considered post oak
land. The appearance
of the trunk, branches
etc. is very much like
that of a white oak
sapling in the woods
about St. Louis. I have
seen no white oak
here unless this may
yet turn out to be a
form of *Quercus alba*,
which does not seem
probable. I do not think
it a hybrid, it is too
uniform in appearance
and too common
& think for that.



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Besides I don't see what it has a chance to cross with, unless it be *Quercus Emoryi* which occasionally grows with it. At least I take an oak which I find with it sometimes for *Q. Emoryi*, but in this I may be mistaken; I have seen specimens from all the different oaks here except Black Jack, which seems to be less variable than most of the others.

I go from here to-morrow to Dallas which will be my address for about a week. Very truly

Geo. W. Letterman

MISSOURI BOTANICAL GARDEN
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